REMARKS

The Examiner is thanked for the performance of a thorough search.

STATUS OF CLAIMS

Claims 17-19, 30, and 41, that are part of Group II in the restriction, have been cancelled.

Claims 42-57 have been added.

No claims have been amended or withdrawn.

Claims 1-16, 20-29, 31-40, and 42-57 are currently pending in the application.

SUMMARY OF THE REJECTIONS/OBJECTIONS

Claims 1-41 have been made subject to a restriction requirement between Group 1, consisting of Claims 1-16, 20-29, and 31-40, and Group 2, consisting of Claims 17-19, 30, and 41. Claims 1-3, 5-10, 12, 14, 16, 20-24, 27, 29, 31-35, 38, and 40 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent Number 6,728,670 issued to Schenkel et al. (" *Schenkel* ") in view of U.S. Patent Number 6,516,345 issued to Kracht (" *Kracht* "). Claims 4, 11, and 15 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Schenkel* in view of *Kracht* and in further view of U.S. Patent Number 6,628,623 issued to Noy (" *Noy*"). Claims 13, 25, 26, 28, 36-37, and 39 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Schenkel* in view of *Kracht* and in further view of U.S. Patent Number 5,347,167 issued to Singh (" *Singh*"). The rejections are respectfully traversed.

RESPONSE TO REJECTIONS NOT BASED ON THE PRIOR ART

The Applicant confirms the election of Group I in response to the restriction requirement, consisting of Claims 1-16, 20-29, and 31-40, plus added dependent Claims 42-57.

Claims 17-19, 30, and 41 in Group II have been cancelled.

RESPONSE TO REJECTIONS BASED ON THE PRIOR ART

A. CLAIM 1

(1) INTRODUCTION TO CLAIM 1

Claim 1 features:

"A method for determining one or more logical interconnections among a plurality of network devices that are interconnected in a network in an indefinite relationship, wherein ***a power state*** **is associated with a first network device,** the method comprising the computer-implemented steps of:

changing *the power state* of the first network device;

identifying whether an alteration occurs at a second network device **in response to changing *the power state*** of the first network device; and

when the alteration occurs at the second network device, creating and storing first information representing a logical connection of the first network device to the second network device." (Emphasis added.)

Thus, Claim 1 features determining logical interconnections among network devices by changing the power state of one device and identifying an alteration at a second device in response to the change of power state of the first device. The approach of Claim 1 addresses the problem of identifying potential connection problems with an existing network configuration that arise despite the use of a rigid network definition and skilled personnel establishing and checking the physical connections between devices in the network (e.g., due to the inevitable human errors that are made). (Application, page 5, lines 3-8.) By changing the power state of one device to identify alterations at other devices as in the approach of Claim 1, existing physical connections can be determined and information representing the corresponding logical connection created and stored.

For example, in one embodiment described in the application with reference to FIG. 2, a set of network wiring guidelines that include a set of general rules or instructions for connecting network devices are used to wire a network. (Application, page 10, lines 5-11; FIG. 2, block 210.) Then the power state of a device is changed, such as by causing a CPU that is initially unpowered (or "off") to have power supplied to the CPU (e.g., the CPU is

turned on). (Application, page 10, lines 20-25; FIG. 2, block 220.) Other network devices are monitored to identify alterations or changes in response to changing the power state of the initial device, which would indicate that any such devices experiencing an alteration or change are connected to the device that experienced change in the power state. (Application, page 11, lines 11-17; FIG. 2, block 230.) As a specific example, a control device can identify an alteration at a switch in response to turning a CPU "on," such as the raising of a trap on the port of the switch, which would indicate that the CPU and switch are connected through the port on which the trap is raised. (Application, page 11, lines 18-23.)

The results of changing the power state of the initial device and identifying changes in any other devices in the network are created and stored, and then the results can be compared to other information, such as a database that is supposed to contain information about the connections in the network, to verify that testing results match those in the database. (Application, page 12, lines 7-16; FIG. 2, blocks 240, 250.) If there are any errors between the test results and the expected results based on information from the database, a technician can investigate and resolve the error to determine whether there is an improper connection between the devices or whether the database has incorrect information. (Application, page 13, lines 6-25; FIG. 2, blocks 260, 270.)

(2) INTRODUCTORY DISCUSSION OF *SCHENKEL*, *KRACHT*, *NOY*, AND *SINGH*

In contrast to the approach of Claim 1, *Schenkel* discloses an approach for determining a network topology by transmitting a signal comprising a sequence of bursts of packets and monitoring other network devices for the signal traffic, which is then analyzed with a statistical algorithm to determine how similar the traffic sent by the transmitting device is to the traffic received by other devices. (Abstract; Col. 1, line 66 through Col. 2, line 17.) Packet traffic that is sufficiently similar between the output of the transmitting device and the input of a receiving device is indicative of an existing communications link between the transmitting and receiving devices. (Col. 2, lines 20-26.) While the approach of *Schenkel* can be used to determine connections between devices by sending and analyzing traffic consisting of packet bursts, *Schenkel* discloses nothing about changing the power state of one device, such as by turning a device that is "off" to "on," to identify an alteration at another device in response to changing the power state.

Also in contrast to the approach of Claim 1, *Kracht* discloses an approach for determining the actual physical topology of network devices based on gathered configuration information that represents true neighboring devices. (Abstract.) Specifically, *Kracht's* approach determines a set of network addresses, then gathers Layer 2 and Layer 3 configuration information to identify possible neighboring devices, and then processes that information to identify the true neighboring devices from the possible neighboring devices. While the approach of *Kracht* can be used to determine connections between true neighboring devices, *Kracht* discloses nothing about changing the power state of one device, such as by turning a device that is "off" to "on," to identify an alteration at another device in response to changing the power state.

Also in contrast to the approach of Claim 1, *Noy* discloses an approach for determining an Ethernet LAN switch topology by establishing communications links between a server and a switch, identifying other switches in the Ethernet LAN, generating a mapping of the switches, and then processing the mapping to identify leaves, thereby establishing the topology of the Ethernet LAN. (Abstract.) While the approach of *Noy* can be used to determine Ethernet connections in a LAN, *Noy* discloses nothing about changing the power state of one device, such as by turning a device that is "off" to "on," to identify an alteration at another device in response to changing the power state.

Also in contrast to the approach of Claim 1, *Singh* discloses a power controller having a microcontroller to control switching the power to outlets on the power controller. (Abstract.) A keyboard connected to a host computer is used to instruct the microcontroller to turn on or off the outlets on the power controller. (Abstract.) While the power controller of *Singh* can be used to power off and on devices that are connected to the outlets of the power controller, *Singh* discloses nothing about changing the power state of one device, such as by turning a device that is "off" to "on," to allow for identifying whether an alteration occurs at other devices in response to powering off or on a device connected to an outlet of the power controller.

(3) THE OFFICE ACTION'S CITATIONS FROM *SCHENKEL*

The Office Action states that *Schenkel* discloses "changing the power state of the first network device; identifying whether an alteration occurs at a second network device in

response to changing the power state of the first network device (column 2, lines 20-40; shows a signal sent from a source device to a destination device, Figure 2, and column 3, lines 18-32.)" However, the first cited portion of *Schenkel* describes measuring the traffic output of one device (e.g., the sequence of bursts of packets formed of orthogonal signals), the traffic input of another device, and determine connections between devices or a sequence of connections between devices based on whether the measured traffic between the two devices is similar or not. (Col. 2, lines 40-40.) The remaining cited portions of *Schenkel* describe a series of four devices, A through D, connected in series in which the output of one device is the input to the next device. (Figure 2, Col. 3, lines 18-32.)

The mere sending of a signal comprised of a sequence of packet bursts is not the same as "**changing** ***the power state***" of a device as in Claim 1. In *Schenkel*, the sending of packet bursts does not change the power state of the sending device, the receiving device, or any other device, which is a fundamental difference between *Schenkel* and the approach of Claim 1. In fact, some changes to the power state of a sending device, such as from on to off or from active to standby, would render the approach of *Schenkel* inoperative because the sending device would be incapable of sending the signal. Even other power state changes, such as by turning a device from off to on, would not result in sending the sequence of bursts of packets as disclosed in *Schenkel*.

Furthermore, from the Office Action's paraphrasing of the citation from *Schenkel* by referring to *Schenkel* showing "a signal sent from the source device to the destination device, it appears that the basis of the rejection of Claim 1 is that changing the power state as featured in Claim 1 is a type of signal that is the same as the particular signal disclosed in *Schenkel*. However, the approach of Claim 1 does not feature sending "a signal" from the first network device and monitoring network traffic at the devices to identify whether the second network device receives the signal. Rather, the approach of Claim 1 features changing the power state of the first network device and identifying an alteration at a second network device. Some power state changes, such as turning a device from on to off or from active to standby, would not result in the sending of any signal, and other power state changes, such as turning a device from off to on or from active to standby, results in a live connection over which signals may be sent and can cause a change at the second device, such as the raising of a trap on a port of a

switch, but such power state changes do not result in a signal being sent, little less the types of signals disclosed in *Schenkel.*

Even if one were to assume that changing the power state of a device results in the sending of a signal, the second step of Claim 1 features "identifying whether an alteration occurs at a second network device **in response to changing *the power state*** of the first network device." However, there is no change in the power state of a network device in the approach of *Schenkel*, nor do the signals sent and received cause a change in the power state of any device, little less identifying alterations at other devices in response to changing the power state of a particular device, as in the approach of Claim 1.

While *Schenkel* discloses an approach for determining a network topology by sending a signal consisting of a sequence of bursts of packets and measuring such packet traffic at the output of a sending device and the input of a receiving device, this does not relate to either "**changing *the power state*** of the first network device" or "identifying whether an alteration occurs at a second network device **in response to changing *the power state*** of the first network device" as featured in Claim 1 of the present application.

(4) CONCLUSION OF DISCUSSION OF CLAIM 1

Because *Schenkel* fails to disclose, teach, suggest, or in any way render obvious "**changing *the power state*** of the first network device" and "identifying whether an alteration occurs at a second network device **in response to changing *the power state*** of the first network device," the Applicant respectfully submits that, for at least the reasons stated above, Claim 1 is allowable over *Schenkel* and is in condition for allowance.

Similarly, because *Schenkel* and *Kracht* (not to mention *Noy* and *Singh*), either alone or in combination, fail to disclose, teach, suggest, or in any way render obvious "identifying whether an alteration occurs at a second network device **in response to changing *the power state*** of the first network device," the Applicant respectfully submits that, for at least the reasons stated above, Claim 1 is allowable over the art of record and is in condition for allowance.

C. CLAIMS 6, 12, 16, 20, 27-29, 31, AND 38-40

Claims 6, 12, 16, 20, 27-29, 31, and 38-40 contain features that are either the same as or similar to those described above with respect to Claim 1. In particular, Claims 20 and 31 both feature "changing the power state of the first network device" and "identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device," which is the same as in Claim 1. Similarly, Claims 6, 27, and 38 feature "activating a particular network device of said set of specified network devices" and "identifying whether, in response to activating the particular network device, a change occurs at one or more network devices of said plurality of network devices," which are similar features to those in Claim 1. Similarly, Claims 12, 28, and 39 feature "sending a signal from a control device that results in a change in a power state of a first network device in response to the signal" and "determining whether the first network device is connected to a second network device by identifying an alteration at the second network device that occurs in response to changing the power state of the first network device," which are similar features to those in Claim 1. Finally, Claims 16, 29, and 40 feature "power cycling a first network device" and "identifying whether a suspected link of the first network device and a second network device becomes active as a result of power cycling of the first network device," which are similar features to those in Claim 1.

Therefore, based on at least the reasons stated above with respect to Claim 1, the Applicant respectfully submits that Claims 6, 12, 16, 20, 27-29, 31, and 38-40 are allowable over the art of record and are in condition for allowance.

D. CLAIMS 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, AND 55-57

Claims 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, and 55-57 are dependent upon Claims 1, 6, 12, 20, 31, 27, 28, 38, and 39, respectively, and thus include each and every feature of the corresponding independent claims. Each of Claims 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, and 55-57 is therefore allowable for the reasons given above for the Claims 1, 6, 12, 20, 31, 27, 28, 38, and 39. In addition, each of Claims 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, and 55-57 introduces one or more additional limitations that independently render it patentable. However, due to the fundamental differences already identified and to expedite the positive resolution of this case, a separate discussion of those

limitations is not included at this time. Therefore, it is respectfully submitted that Claims 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, and 55-57 are allowable for the reasons given above with respect to Claims 1, 6, 12, 20, 31, 27, 28, 38, and 39.

CONCLUSION

Claims 17-19, 30, and 41have been withdrawn from examination as the result of an earlier restriction requirement and thus have been cancelled herein, but the Applicant retains the right to present Claims 17-19, 30, and 41 in a divisional application.

The Applicant believes that all issues raised in the Office Action have been addressed and that allowance of the pending claims is appropriate. After entry of the amendments, further examination on the merits is respectfully requested.

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

To the extent necessary to make this reply timely filed, the Applicant petitions for an extension of time under 37 C.F.R. § 1.136.

If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,
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on Jan. 21, 2005 by Tracy Reynolds
Tracy Reynolds